REMARKS

This paper is responsive to the Office Action of October 17, 2007. Reconsideration and allowance of the claims 1-14 are requested.

The Office Action

Claims 1, 2, 4, 6-7, 9, 11, and 12 stand rejected under 35 U.S.C. § 102 as being anticipated by Keilman (US 6,231,516).

Claims 3, 8, and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Keilman.

Claims 5 and 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Keilman in view of Wilk.

The Claims Distinguish Patentably Over the References of Record

Claim 1 is directed to a transmission cable. Keilman is not directed to a transmission cable and is not analogous prior art. Rather than being directed to a transmission cable, Keilman is directed to an implantable medical device, particularly a stent which carries an IC chip 320 for performing a therapeutic or diagnostic function. Figures 19A-D referenced by the Examiner illustrate a stent which is a tubular construction which is implanted in the subject and is not interconnected by wiring or cables with any structure exterior to the patient. Keilman has a series of wires 23, 23A which function as an RF antenna 30 (Figs. 1-6) to receive RF signals generated from outside the patient. These RF signals received by the RF antenna 30, 223 are converted to DC power 32 to provide appropriate power to transducers 44, 46 and other associated circuit elements illustrated in Figures 1-6. These transducers and related circuitry, which are powered via the antenna 30, 223, 223A, can perform various monitoring and therapeutic functions such as monitoring pressure, temperature, and sensing for levels of biochemical substances (col. 3, lines 6-24) capturing or releasing drugs by using magnetic fields to catch or release magnetic delivery vehicles coupled with the drugs, and the like. As the Examiner notes, one possible transducer 44, 46 is an ultrasonic monitor, such as might be used for measuring flow velocity through the stent. Instructions are transmitted to the transducers and the associated circuitry via the RF antenna 30, 223, 223A and the

results of any measurements from transducers functioning as monitors are transmitted back to the surface of the patient via the antenna 30, 223, 223A. Thus, Keilman is directed to a wireless monitoring or therapeutic delivery device and is **not** directed to a transmission cable.

The stent 222 and the RF receive/transmit coil 30, 223, 223A are not connected at either end with either a source of power or data to be transmitted or a receiver for receiving the transmitted power or data or the like. Rather than functioning as a transmission cable, wires 30, 223, 223A function as an RF transmit/receive antenna.

Further, claim 1 calls for a transmission cable for use in a magnetic resonance apparatus. In a magnetic resonance apparatus, large RF pulses are transmitted to excite and manipulate resonance. One common problem encountered in RF resonance examinations is that electrically conductive elements such as cableing, antennas, catheters, and the like can have large currents induced in them by such RF field pulses. These large currents cause significant temperature rises due to resistance heating. It is submitted that the RF antenna 30, 233, 233A of Keilman would render it inappropriate to image the patient with the implanted structure in an MR imaging device. The RF pulses could induce very large currents in the antenna 30, 233, 233A which might burn or seriously injure the patient as well as generating such a power surge that the IC circuit elements would most likely be destroyed. Accordingly, not only does Keilman not disclose a transmission cable, but Keilman also does not disclose a transmission cable or other device suitable for use in a magnetic resonance apparatus.

Claim 1 calls for a plurality of cable segments. Keilman discloses a loop antenna 30, 233, 233A. Keilman does not specifically indicate whether there are a plurality of segments, but if there are they must be electrically connected to function as a receive/transmit antenna.

Claim 1 further calls for a plurality of electroacoustic couplers which provide electrical connection between the plurality of cable segments. First, the RF coil 30, 223, 223A is not connected directly with transducers 44, 46. Second, if the antenna 30, 233, 233A of Keilman has multiple segments, such segments are not interconnected with transducers 44, 46. Rather, transducers 44, 46 are connected only

with the intermediate circuitry and are not connected directly to the antenna 30, 233, 233A. Transducers 44, 46 do not connect segments of the antenna 30, 223, 223A.

Moreover, claim 1 calls for electroacoustic couplers. While an ultrasonic based velocity measurements system may be electroacoustic, it is not an electroacoustic coupler. An ultrasonic velocity measurement system does not couple much less provide an electrical connection between cable segments, much less provide an electrical connection between segments of the RF antenna 30, 223, 223A.

Accordingly, it is submitted that claim 1 is not anticipated by Keilman.

Claim 2 calls for a mixer disposed at one end of the cable for shifting a signal frequency associated with the electroacoustic couplers. First, Keilman is not directed to a transmission cable. Second, Keilman does not have a mixer at one end. Third, Keilman makes no suggestion of shifting a frequency associated with electroacoustic couplers. Indeed, Keilman does not even suggest changing an acoustic frequency of any ultrasonic transducers used for velocity measurement. Moreover, Keilman provides no enabling disclosure as to how one would change the frequency of an ultrasonic velocity measurement transducer.

Claim 3 calls for a second mixer and distinguishes over Keilman for at least the reasons set forth in conjunction with claim 2 and others.

Claim 4 calls for a transmission cable in which each of the plurality of cable segments includes first and second conductors each of which are connected to at least one electroacoustic coupler. The loop antenna 30, 223, 223A of Keilman is not disclosed as having two conductors each of which is connected to an electroacoustic coupler.

Claim 5 sets forth details of an electroacoustic coupler. Wilk which does not disclose an electroacoustic coupler does not cure the shortcomings of Keilman. Because the Examiner references Figure 20 and means 352 and substrate 350 of Wilk and Wilk has only four figures with no reference numerals above 100, it is unclear what part of Wilk the Examiner considers to be an acoustic coupler much less an electroacoustic coupler which meets the limitations of claim 5. The portions of columns 3 and 4 referenced by the Examiner relate to a measurement device on a catheter. They do not relate to an electroacoustic coupler.

Moreover, Wilk is directed to a catheter. The Examiner has held claim 14 directed to a catheter to be directed to a different invention that is sufficiently unrelated as to be restrictable. It is submitted that the Examiner's restriction of claim 14 directed to a catheter evidences that the catheter of Wilk is not analogous prior art. In the alternative, it is submitted that if the Examiner persists that the catheter of Wilk is analogous art, then the Examiner should withdraw the restriction requirement and examine and allow claim 14 along with the other claims.

Claim 6 calls for an MR apparatus. Keilman is not directed to an MR apparatus and makes no suggestion of magnetic resonance.

Claim 6 further calls for a main magnet for generating a main magnetic field and an RF coil disposed in the examination region for transmitting or receiving RF signals. In addition to the RF coils, claim 6 calls for a plurality of transmission cables. The Examiner is relying on the same RF coils 30, 223, 223A as being both the RF coil and the separately recited transmission cable. It is submitted that when a claim sets forth two different structures with different purposes it is improper to assert that a single structure in a reference anticipates the two structures in the claim. Again, the applicant submits that construction 30, 223, 223A is an RF coil and not a transmission cable.

Moreover, claim 6 calls for a plurality of electrostatic couplers for coupling adjacent cable segments. Even in the embodiment in which one of transducers 44, 46 is an ultrasonic velocity measurement device, such ultrasonic measurement device is a velocity monitor and is not an electroacoustic coupler, much less an electroacoustic coupler which couplers segments of a transmission cable.

Dependent claims 7-10 set forth additional details which distinguish more forcefully over Keilman and the other references of record.

Claim 11 calls for a transmission cable for use in a magnetic resonance apparatus. The device of Keilmann is not a transmission cable and is not designed for use in a magnetic resonance apparatus.

Claim 11 further calls for a plurality of cable segments and a plurality of couplers which transform a signal carried on a first cable into an acoustic signal and the acoustic signal into a second signal carried by a second cable segment. Keilman neither has a plurality of cable segments nor a plurality of couplers. In the

embodiment in which one of transducers 44, 46 is an ultrasonic velocity measurement device, it is submitted that the acoustic signals are sent and received by the same acoustic device and the information is processed by the same circuitry. That is, power is transmitted to the associated circuitry via antenna 30, 223, 223A along with any control signals for controlling the transducer and any measurements made by the transducer are encoded and transmitted back to the RF antenna 30, 223, 223A. The ultrasonic transducers of Keilman do not couple a first antenna cable segment to a second antenna cable segment.

Claim 12 calls for each coupler to have a high impedance for a common mode wave on the cable. Keilman does not disclose a transmission cable with such characteristics.

Claim 13 calls for a mixer disposed at each end of the cable. Both ends of the antenna 30, 223, 223A are not connected with a mixer in any of Figures 1-4. Nor are either end of the antenna of Keilman connected to a structure analogous to a mixer. Moreover, there is no apparent reason why one would modify the structure of Keilman to add such a mixer. Adding a mixer to Keilman does not appear to provide any function or purpose. The Examiner has failed to point to any part of Keilman which would provide motivation as to why one would add such a mixer or what function one would hope to achieve by doing so.

CONCLUSION

For the reasons set forth above, it is submitted that no claims are anticipated by and that all claims distinguish patentably and unobviously over the references of record. An early allowance of all claims is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, she is requested to telephone Thomas Kocovsky at (216) 861-5582.

Respectfully submitted,

FAY SHARPE LLP

Thomas E. Kocovsky, Jr.
Reg. No. 28,383
1100 Superior Avenue, 7th Floor
Cleveland, OH 44114-2579
(216) 861-5582